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ABSTRACT

This study investigated the relationship of elementary teachers' priorities given to behavioral objectives of instruction and their practice in the classroom. Thirty teachers, representing six school districts, were administered a 100-item structured Q-sort comprised of five theoretical categories: low cognitive, high cognitive, tool-skill, affective-personal, and affective-interactive. Statistical analyses revealed that 26 teachers ranked either the affective or high cognitive categories as most important. When these findings were correlated to classroom practice, no significant correlation was found between those objectives teachers ranked as most important and those they practiced. The study seemed to demonstrate that although teachers did have priorities of instruction, they did not translate these priorities into their classroom practice. A bibliography of 18 items is addended. (Author)

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The Relationship Between Elementary School Teachers' Assignments of Educational Priorities and Their Practice: A Q Study

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PROBLEM

A search of the literature[1] pertaining to the areas of teachers' priorities or instruction in behavioral terms and the utilization of these priorities suggested the following points:

First, when teachers are both aware of, and utilize behavioral objectives, learner achievement seems to improve, Mager and McCann, (1961).

Second, when teachers utilize high-cognitive and/or affective-personal behavioral objectives, student achievement in these two categories seems to increase while achievement does not decrease in other categories, Hunkins (1968), Alschuler (1969), Williams (1970), Soar (1970).

Third, studies in general have found that even when teachers articulate some philosophical priorities concerning educational objectives, their classroom practice cannot be predicted from their preferences, Brown (1970).

Finally, no evidence has been found in regard to what the priorities of teachers, in behavioral terms, are, and the degree to which they are practiced in classroom instruction, Brown (1970).

These points raised the following research problem:

Do teachers, in fact, establish priorities of behaviorally stated educational objectives within a theoretical framework, and if so, what is the nature of these priorities? Do teachers demonstrate these priorities in the classroom? In other words, is there a relationship between teacher stated priorities and the objectives they appear to pursue in the classroom?

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[1] See Woog, Pierre "The Relationship Between Elementary School Teachers' Assignments of Educational Priorities and Their Practice:" A Q Study, unpublished doctoral dissertation, Hofstra University, 1971.

To seek evidence relating to this problem, the following hypotheses were proposed:

1. Given five categories of behaviorally stated educational objectives, teachers will designate behaviors falling in some of the categories as being more important than those falling in other categories. Thus, the analysis of variance will indicate significant differences in the mean ranks assigned to objectives from the different categories.
2. Given five categories of behaviorally stated educational objectives, a significantly greater number of teachers will select the high-cognitive or affective-personal categories than other categories as measured by a Chi square analysis.
3. There will be a positive relationship between mean ranks assigned to categories of behaviorally stated educational objectives that teachers select and their behaviors that are observable in the classroom as measured by a product moment correlation between the priority assigned to a category and the frequency of behavior observed in each category.

In this study a sample of thirty teachers representing six school districts in the Nassau-Suffolk New York State region were administered a one-hundred item Q-sort which purported to measure each teacher's perceived priority along the lines of five theoretical categories of educational objectives. The results of this instrument were correlated with the teacher's classroom behavior along the dimension of the same five categories of educational objectives.

The five theoretical categories of behaviorally stated objectives were first suggested by Kaya (1961). These categories included:

--Low-cognitive category. This category is concerned with the recall, recognition and retention of facts, theories, concepts and principles.

--High-cognitive category. This category is concerned with the intellectual manipulation and application of information.

--Tool-skill category. This area is concerned with behaviors which have become routinized and habitual through training.

--Affective-personal category. This area is concerned with affective behaviors having to do with the individual and his own personal development.

--Affective-interactive category. This area is concerned with the child's interaction with others as well as his environment.

METHOD

Selection of Sample

School Districts: Six public school districts were selected by a stratified random sampling technique from a total of ninety-two centralized public school districts in the Nassau-Suffolk County regions of New York State. Each district was identified in code as being economically "high", "medium" or "low."

The data used to tri-partition the school districts was furnished by the New York State Educational Data System's Chief, Mr. Joseph Forte. Table #55 of the Annual Education Summary Nineteen-Sixty-seven-Sixty-eight entitles, "Real Property Valuation and Tax Levy by County and District of 1967-68 was used. It was suggested by the Bureau that the best single indicator of economic level of a school district was the total assessed valuation of a district divided by the number of students within the district. This procedure was followed and cut-offs for "high", "medium" and "low" were established by inspection. "High" districts were those with average assessed valuation per student in excess of $18,000.00. "Medium" districts were those with an average assessed valuation per student of more than $5,000.00 and less than $7,000.00. "Low" districts were those with an average of less than $4,000.00 average assessed valuation per student. The final population included ten "high" districts, fifteen "medium" districts and nineteen "low" districts. Table 1 shows the rank order of average assessed valuation per student, per school district and those districts designated "high", "medium" and "low."

From this stratified sample, two school districts from each level were randomly sampled.[1] The result was a sample of school districts consisting

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[1] Robert K. Young and Donald J. Veldman, Introductory Statistics for the Behavioral Sciences, Holt, Rinehart and Winston, Inc., New York, 1965 p. 426.

of two randomly sampled "high districts, two randomly sampled "medium" districts and two randomly sampled "low districts for a total of six school districts.

Teachers: Elementary school principals within each participating school district were asked to select a teacher or teachers to be included within the teacher sample. The selection process was made within the principal's own school. Principals were instructed to select teachers with the following criteria in mind:

--Only select those teachers that are presently teaching the highest grade level within your building

--Only select teachers that you consider to be "good" in the sense that they represent what you consider the district's instructional goals.

The choice to select only "good" teachers was made for two reasons. First, in order to reduce the variability of teacher quality as systematic error. Second, in order to most efficaciously solicit the participation on the part of sample school districts.

Each school district selected five teachers to be included within the sample. Whenever possible, given that the school district had a minimum of five elementary schools, one teacher per school or per principal was selected.

Table 1. Average Assessed Valuation per Student of Nassau-Suffolk Centralized School Districts in Dollars with "High", "Medium" and "Low" Designated.

School District Rank	Average Assessed Valuation/Student	School District Rank	Average Assessed Valuation/Student
1	59088	47	7240
2	52160	48	7146
3	41562	49	6889
4	36272	50	6571
5	29949	51	6558
6	27442	52	6554
7	22413	53	6352
8	18876	54	6141
9	18262	55	5881
10	18205	56	5558
11	17640	57	5526
12	17229	58	5409
13	17140	59	5332
14	16891	60	5327
15	16120	61	5226
16	16096	62	5120
17	14967	63	5079
18	14847	64	4939
19	14691	65	4775
20	14635	66	4679
21	14438	67	4670
22	13797	68	4665
23	13259	69	4642
24	12281	70	4562
25	12270	71	4494
26	12173	72	4124
27	11985	73	4037
28	11594	74	3960
29	11436	75	3671
30	11386	76	3670
31	11354	77	3669
32	10872	78	3599
33	10749	79	3595
34	10721	80	3568
35	10446	81	3501
36	10056	82	3454
37	9285	83	3349
38	9204	84	3242
39	9121	85	3214
40	8518	86	3211
41	8430	87	3116
42b	8343	88	3010
43	7821	89	2939
44	7651	90	2726
45	7462	91	2599
46	7400	92	2166

Ranks 1-10 "High"
49-63 "Medium"
74-92 "Low"

The result of this sampling technique was a selected sample of thirty teachers from a stratified random sample of six school districts. The table below indicates the type and number of school districts and the teachers included in the sample.

Table 2. Sample of Teachers

Economic Index of School Districts	High (2)	Medium (2)	Low (2)
Number of Teachers from Two Districts in Each Economic Level	10	10	10

Measurement Techniques

The Q-technique was used to assess the priorities teachers assigned to different categories of behaviorally stated educational objectives. In addition to this technique, classroom observations of the teachers were conducted to determine the frequency with which the categories of behaviors were observable in the classroom.

The Q-technique is based upon a forced choice method which lends itself to statistical analysis of data to determine intra-individual variance. Briefly, it asks a subject to sort a specified number of items in a prescribed manner, usually a quasi-normal distribution along a value dimension. In this study, teachers were asked to sort one-hundred items into eleven piles. These piles ranged from those items they perceived as being the most significant objectives of elementary instruction to those items they perceived as being the least significant objectives of elementary instruction.

Q-Sort's Reliability

In order to establish the repeat reliability of the one-hundred item Q-sort which was constructed for this study, six teachers and professors were

administered the Q-sort twice with a time interval of three weeks between the two administrations. The obtained repeat-reliability coefficients ranged from .82 to .91.

Q-Sort's Validity

After the five categories of behaviorally stated educational objectives were theorized, items were sought which reflected each of those categories. The final 100 items in the Q-sort were selected from a pool of over 700 behaviorally stated objectives which were gathered from the following: a) curricular materials, b) classroom observations, c) literature, d) state and local curricular guides and e) interviews with teachers (Woog, 1969). The selection of items was made to represent a possible universe of items which might exhaust the five categories.

The items were written as what Eisner (1969) describes as "expressive" objectives: "An expressive objective describes an educational encounter; it identifies a situation in which children are to work, a problem with which they are to cope, a task they are to engage in . . ."[1]

In Jenkins and Deno (1970) "Model of Instructional Objectives," the items in the Q-sort are characterized as "Level C". This level of behaviorally stated objectives includes verbs such as: classifies, defines, produces examples and predicts.

When initial construction of the Q-sort was completed, three professional educators, all of whom were familiar with the five categories, were asked to judge the relevance of each specific item to each of the five

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[1] E. Eisner, "Instructional and Expressive Educational Objectives: Their Formulation and Use in Curriculum," AERA Monogram Series on Curriculum Evaluation: Volume 3, Instructional Objectives, Rand McNally, Chicago, Illinois, 1969, p. 15.

categories. Only items which received 100% agreement were included in the final sort.

The following investigations of construct validity were conducted after the sort was constructed in order to obtain further evidence of validity:

A group of twenty Master's level students in education were administered an instrument which contained all 100 items that are found in the Q-sort. They were asked to categorize each item given the five categories. Only those students proficient[1] in the use of behaviorally stated objectives were included in the study.

The data were analyzed by computing per item the percent of students who categorized that item as being from the same category for which the item was constructed. From this analysis a median percent per category over the twenty students was computed. This percent was perceived as the percent of explained variance per category and the square root of that percent as a "construct validity coefficient."[2]

Table 3 presents the median of agreement, the range of agreement among items and the validity coefficient per category:

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1 "Proficient" was operationally defined as receiving a score of equal to or greater than sixteen correct responses out of a possible twenty-three items in a test of mastery of application of behavioral objectives. The test had been administered two weeks previous to the instrument asking the students to respond to the 100 items.

2 Lee J. Cronbach and Paul E. Meehl, "Construct Validity in Psychological Tests," Psychological Bulletin, Volume 52, No. 4, July, 1955, p. 289.

Table 3

Median Percent of Agreement, Range of Agreement Among Items and Validity Coefficient Per Category.

Category	Low-Cognitive	High-Cognitive	Tool-Skill	Affective-Personal	Affective-Interactive
Median Percent of Agreement	75	95	85	85	80
Range of Agreement Among Items	10-100	75-100	20-100	20-100	20-100
Validity Coefficient	.87	.97	.92	.92	.89

In a second study, the one-hundred items of the Q-sort were factor analyzed over 101 respondents. These respondents included: 1) twenty secondary teachers, 2) fifty elementary teachers, 3) fifteen community members and 4) sixteen school administrators. The results of the factor analyses indicated three strong factors which seemed to represent the categories of Affective, High-Cognitive and a combined factor of Low-Cognitive Tool-Skill, (Kaya and Woog, 1971).

During the 1969-1970 academic year the director of Pilot Elementary Education Program at Hofstra University, Professor Anne Morgenstern requested that the Q-sort be administered to the students in the program as a pre October, 1969; post May, 1970 measuring device. It was hypothesized that as a result of the year's experience students would become more "affective-personal" oriented as measured by the Q-sort. This experimental program[1] includes such activities as "Human Relations Seminars" weekly during the program. As a result of this experience, the program director hypothesized that the overall mean in the category of "affective-personal" would be significantly greater

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1 Anne Morgenstern, "Highlights of A Pilot Master of Science Program," Hofstra University, Hempstead, New York, 1969, p. 2.

at the .05 level for the students at the end of the year as compared to the beginning.

The means of fourteen students for the category of "affective-personal" were analyzed using a correlated t analysis. The results demonstrated, at p less than .05, that there had been a significant positive shift among the students toward the category of "affective-personal." Overall, only two of the fourteen students means had decreased in the "affective-personal" category between October, 1969 and May, 1970 (Woog and Maltin, 1970).

Classroom Observation Technique

The classroom observation instrument was developed to systematically observe and record the frequency of teacher's utterances into one of the five categories of educational objectives. Classroom observers recorded each teacher's discrete verbal utterances and inferred from each utterance which category of pupil behavioral objective might be achieved. Each audible teacher's utterance[1] was transcribed by each observer and then categorized.[2] Those utterances which did not "fit" into one of the categories were identified as being "miscellaneous" and were not transcribed. Selected examples of teacher utterances per category, and an explication of the "miscellaneous" category is as follows:

Low Cognitive Category

"Do you remember what lines of force are?"

"Where are the glacial lakes?"

"Did you ever hear the word before?"

"Who was Harrigan?"

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1 Edward M. Hanley, "Review of Research Involving Applied Behavior in the Classroom," Review of Educational Research, volume 40, No. 5, December, 1970, p. 603.

2 Kenneth Murray, "The Systematic Observation Movement," Journal of Research and Development in Education, Volume 4, No. 1, Fall, 1970, p. 3.

High Cognitive Category

"Why might northern animals have heavy coats?"

"What was the main idea of the book?"

"How do you know that is true?"

"What made Harrigan reject him?"

Tool Skill Category

"Find the page number where you found the answer."

"Look up the meaning of "jetty"."

"What is the sum of four and three?"

"Fill in the bar graph."

Affective-Personal Category

"Do it, if you want."

"Anyone want to add something else?"

"Reread it, unless it is boring."

"It's always somebody else's fault."

Affective-Interactive Category

"Sam, would you take care of Andy?"

"Borrow from the next kid and work together."

"Snare your wires."

"How about working together?"

Miscellaneous Category

All utterances that could not be identified as leading to any specific behavior on the part of the pupils, and which thus could not be placed in a category of pupil objectives, were classified as miscellaneous. There were several types of miscellaneous utterances. These, together with some examples, are given below:

Pure informational[1] - consists of a teacher's sudden "bursting in"

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[1] Jacob S. Kounin, "Observing and Delineating Techniques of Managing Behavior in Classrooms," Journal of Research and Development in Education, Volume 4, No. 1, Fall, 1970. p. 70.

on the children's activities with an order, statement, or question in such a manner as to indicate that her own intent or desire was the only determinant of her timing and point of entry. That is, she evidences no sign (pausing, looking around) of looking for, or of being sensitive to the group's readiness to receive her message. It has a clear element of suddenness as well as an absence of any observable sign of awareness or sensitivity to whether the target audience is in a state of readiness. Examples would be:

"Lunch will be late today."

"Don't forget to write your name on the top."

Rhetorical statements - the teacher does not require or wish a response from the pupils. Here the teacher behaves as if she is seeking information or a behavior from the pupils, but reacts to it herself either by answering her own questions or ignoring it completely. Examples would be:

"What time is it?" (as she looks at own watch).

"Was this work done? Yes, it was, I see."

Chatter[1] - these statements appear when a teacher begins to say something and then leaves it hanging in the air by going off to some other topic of conversation. Following such a statement, the teacher resumes the activity. An example would be:

"Why don't we...?"

Busy talk - these statements appear to convey no information, nor do they require any specific behavior on the part of the students. The only purpose they seem to serve is to let those present know that the teacher is present and awake. Examples would be:

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[1] Jacob S. Kounin, "Observing and Delineating Techniques of Managing Behavior in Classrooms," Journal of Research and Development in Education, Volume 4, No. 1, Fall, 1970, p. 70.

"Uh-huh."

"Is that so?"

Transitional statements - a transition entails terminating one activity and starting another. Examples would be:

"Put away math books."

"Take out your lunch and put it on your desk."

Classroom Observation Instrument's Reliability

Two observers, trained in the category system, conducted two thirty-minute observations in the classroom of each of thirty teachers. Both observers sat at the rear of the classroom at opposite sides. The beginning and ending of the observation was synchronized by the use of hand signals.

To obtain measures of reliability two techniques were employed; a) the percent of agreement between two observers using the frequencies of utterances, and b) the correlation of agreement between two observers' categorization of utterances.

Each observer recorded and categorized each teacher's utterances. At the conclusion of the observation period the frequencies per category were computed. The percent of agreement technique compared the total number of those recorded and categorized utterances that were found on both observation schedules to the observer who had recorded the greatest frequency of utterances. This ratio formed the percent of agreement. This meant that both those utterances which only one observer recorded and those statements which both observers recorded, but categorized differently, reduced the percent of agreement.

This technique was used in five classrooms during a tryout of the classroom observation instrument. The resultant percentages of agreement were: 80; 83; 84; 86; and 96.

For the same tryout observations a coefficient of reliability using a Pearson product correlation technique was also done. For each teacher the

frequency of categorized statements per category were correlated between observers. The resultant coefficients were; .95; .98; .98; .99; and .99.

Classroom Observation Instrument's Validity

One commonly used method to obtain a measure of the validity of a classroom observation instrument is to assume that if two observers consistently categorize behavior reliably, they must be measuring the same thing, and thus some validity is shown, Brown (1970). The procedure calls for computing the square root of the percents of agreement used as a measure of reliability, and identifying these as the validity coefficients. The validity coefficients for the five tryout classroom observations were: .89; .91; .92; .93; and .98.

In order to obtain more comprehensive evidence of validity a group of twenty Master's level students in education responded to an instrument containing a selected sample of ninety verbatim teacher utterances. Students were asked to categorize all utterances into the five categories plus a miscellaneous category.

When the data were collected, the percent of students responding to the same category for which each specific utterance (item) was constructed was computed per item. From this analysis, a median percent per category over the twenty students was computed. The square root of these percents was found and referred to as the validity coefficient per category. These coefficients are shown in Table 4.

Table 4: Median Percent of Agreement, Range of Agreement Among Items and Validity Coefficients Per Category.

	Category					
	Low-Cognitive	High-Cognitive	Tool-Skill	Affective-Personal	Affective-Interactive	Misc.
Median % of Agreement	90	85	60	75	75	85
Range of Agreement Among Items	55-100	45-100	10-95	20-95	45-100	45-100
Validity Coefficient	.95	.92	.77	.87	.87	.92

Data Collection

Each of the randomly selected six school districts included in the study were initially contacted in order to secure their cooperation and to work out the details of data collection. In each district, the district's assistant superintendent in charge of instruction was the original contact. Once the district had decided to participate in the study, arrangements were made to meet with each sample of teachers within the district. Teachers were selected in the district on the basis of being thought of as "good" teachers. This decision was made by each building principal to which the teachers in the sample were assigned.

At the initial meeting with the teachers, it was explained that the study was in the area of behavioral objectives and that each teacher would be observed twice; before and after doing the Q-sort. It was stated that each observation would take thirty minutes, and would occur randomly within the school day with the provision that, during the observation period, the teacher was the sole instructional adult present. During this initial meeting, individual teachers' daily schedules were collected.

After the initial meetings with the teachers, a schedule was made for observations and the administration of the Q-sort.

Teachers in each district were administered the Q-sort as a group. The instructions were read aloud to the group and after any questions in regard to the instructions were asked and answered, teachers did the sort.

After both observations were completed, and the Q-sort was administered, analyses began in order to seek evidence concerning the hypotheses of the study.[1]

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[1] The author wishes to thank Laurie Hollman and Larry Maltin for their excellent assistance in the collection and the analysis of the data.

RESULTS

Hypothesis 1

"Given five categories of behaviorally stated educational objectives, teachers will designate behaviors falling in some of the categories as being more important than those falling in other categories. Thus, the analysis of variance will indicate significant differences in the mean ranks assigned to objectives from the different categories."

Table 5 presents the mean per teacher per category and ranks the resultant F value. Also indicated is whether this resultant F value is significant at $p < .01$ for each teacher.

Of a total of thirty teachers who took the Q-sort, twenty-two had significant differences among the categories at the .01 level. When means per category were compared for the entire group the resultant F value was found to be significant.

A Chi Square test was applied to the results in order to determine whether the number of teachers who had a significant F value was significantly different from the number that was expected as a result of chance. Given the five categories, the one-hundred items, the assigned rank values and the number of teachers, .30 teacher would be expected to have a significant F value by chance alone.

Table 5 Mean Rank Per Teacher Per Category and Resultant F Value

Category / Teacher	Low-Cognitive	High-Cognitive	Tool-Skill	Affective-Personal	Affective-Interactive	F Value**
1	4.40	6.40	3.85	6.30	4.05	9.330*
2	3.60	5.30	4.55	6.80	4.75	7.832*
3	4.10	5.90	2.95	6.35	5.70	13.560*
4	4.25	5.30	4.45	6.35	4.65	3.885*
5	4.60	4.50	4.10	6.45	5.35	4.317*
6	4.05	5.25	5.65	5.15	4.90	1.607
7	3.35	4.70	4.45	6.35	6.15	9.214*
8	4.05	5.70	5.00	4.90	5.35	1.734
9	3.85	5.70	4.45	5.90	5.10	3.581*
10	4.25	5.10	4.15	6.00	5.50	3.044
11	3.40	4.15	6.45	5.95	5.05	9.273*
12	4.55	5.45	4.45	6.15	4.40	2.837
13	3.05	5.05	4.95	5.75	6.20	8.318*
14	3.15	4.95	5.00	6.15	5.75	7.380*
15	4.75	6.10	3.95	6.20	4.00	6.503*
16	3.75	4.65	4.20	5.90	6.50	7.517*
17	2.50	4.30	4.75	6.55	6.90	35.362*
18	4.05	6.40	4.45	6.00	4.10	6.781*
19	3.70	5.45	5.35	5.05	5.45	2.617
20	3.15	4.30	4.65	6.90	6.00	14.927*
21	4.15	6.25	3.80	6.95	3.85	15.512*
22	4.30	5.70	3.60	6.15	5.25	5.683*

Category:	Low-Cognitive	High-Cognitive	Tool-Skill	Affective-Personal	Affective-Interactive	F Value
Teacher						
23	4.05	4.15	4.85	5.70	6.25	4.699*
24	4.00	6.00	4.35	5.70	4.95	3.553*
25	3.05	5.65	4.85	6.15	5.30	8.030*
26	3.55	5.15	5.25	6.25	4.80	4.837*
27	4.45	5.90	4.35	5.55	4.75	2.201
28	4.00	5.50	5.80	5.35	4.35	2.897
29	5.20	5.30	5.20	5.05	4.25	.806
30	3.60	4.75	5.70	5.30	5.65	3.708*
Grand Means	3.90	5.30	4.65	5.98	5.18	40.670*
Standard Deviations	.58	.66	.72	.54	.79	

*p = $< .01$

To compute the Chi Square analysis the expected value must be at least five.[1] To meet this requirement, five, instead of .30, was used as the expected number of teachers having a significant F value by chance. This change resulted in making the analysis even more conservative; thus, maximum caution was used in testing the Q-sort results.

The resultant Chi Square value, 65.34 was found to be significant at p = $<$ .01.

These results supported hypothesis 1: Teachers did designate behavioral objectives falling in some of the categories as being more important than those falling in other categories.

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[1] Robert K. Young and Donald J. Veldman, Introductory Statistics for the Behavioral Sciences, Holt, Rinehart and Winston, New York, 1965, p. 284.

As a result it can be said that given a choice, teachers did make priorities that differentiated among the five theoretical categories of behaviorally stated educational objectives.

Hypothesis 2

"Given five categories of behaviorally stated educational objectives, a significantly greater number of teachers will select the high-cognitive or affective-personal categories than other categories as measured by a Chi Square analysis."

Of the twenty-two teachers whose Q-sorts resulted in a significant F each category was ranked highest by the following number of teachers:

Low-Cognitive category - no teachers

High-Cognitive category - three teachers

Tool-Skill category - two teachers

Affective-Personal - thirteen teachers

Affective-Interactive category - four teachers

A total of sixteen teachers ranked the categories of high-cognitive or affective-personal as highest.

A Chi Square analysis was computed for which the expected number of teachers ranking the categories of high-cognitive or affective-personal highest as a result of chance was two-fifths or the number of teachers having a significant Q-sort, or 8.8 teachers. In comparing this expected number with the observed sixteen who ranked the categories of high-cognitive or affective-personal as highest, the Chi Square value was found to be 8.5.

This was significant at $p = < .01$.

These results supported Hypothesis 2: Teachers did select the categories of high-cognitive and affective-personal as being the most important categories of educational objectives. However, the category of affective-personal was selected as the most important category more often (13) than was the category of high-cognitive (3). Thus, although support was found for the hypothesis it would seem that one specific category, affective-personal, was perceived as being the most important most frequently. This finding would then lend support to the suggestions made by Weinstein and Fantini (1970), as well the studies by Aschuler (1969).

Hypothesis 3

"There will be a positive relationship between mean ranks assigned to categories of behaviorally stated objectives that teachers select and their behaviors that are observable in the classroom as measured by a product moment correlation between the priority assigned to a category and the frequency of behavior observed in each category."

Table 6 presents the observed mean frequencies of utterances per teacher per category and the normalized T scores derived from those mean frequencies.

Table 6: Observed and Transformed Mean Frequencies of Utterances Per Teacher, Per Category

Category:	Low-Cognitive		High-Cognitive		Tool-Skill		Affective-Personal		Affective-Interactive	
	OMF*	TMF**	OMF	TMF	OMF	TMF	OMF	TMF	OMF	TMF
Teacher										
1	15.5	53.4	4.0	41.8	70.0	100.0	10.0	48.3	12.0	50.7
2	2.0	37.2	5.5	43.8	17.0	56.6	21.5	60.2	10.5	49.3
3	23.5	61.4	13.5	51.7	41.0	70.5	15.0	53.1	17.5	57.3
4	16.0	54.7	21.0	59.7	5.0	43.6	14.0	52.2	34.5	66.2
5	53.5	74.5	43.0	72.3	10.0	48.3	5.0	43.6	7.5	45.9
6	16.5	54.5	16.0	54.7	26.5	63.6	3.5	40.1	1.5	35.9
7	22.0	60.5	18.0	58.4	16.5	55.4	10.5	49.3	4.5	42.5
8	7.5	45.9	7.5	45.9	22.5	60.8	3.5	40.1	0.0	34.5
9	6.0	44.4	15.5	53.4	18.0	58.4	10.5	49.3	4.0	41.8
10	13.0	51.3	39.5	69.3	5.0	43.6	15.0	53.1	0.0	34.5
11	4.5	42.5	12.5	50.8	11.5	49.9	16.0	54.7	3.0	39.2
12	38.0	67.5	16.5	55.4	21.5	61.2	18.0	58.4	6.5	44.8
13	13.0	51.3	16.0	54.7	38.5	68.4	7.0	45.3	20.0	59.4
14	20.0	59.4	35.5	66.7	4.0	41.8	3.0	39.2	8.5	46.8
15	30.0	65.0	31.5	65.5	24.5	62.4	6.5	44.8	2.0	37.2
16	25.5	63.2	10.5	49.3	12.0	50.7	0.5	35.0	0.0	34.5
17	2.5	37.6	4.0	41.8	15.0	53.1	11.0	49.7	5.0	43.6
18	4.5	42.5	17.5	57.3	8.5	46.8	16.0	54.7	17.0	56.6
19	8.5	46.8	27.0	64.0	19.5	58.9	0.0	34.5	4.0	41.8
20	0.0	34.5	14.0	52.2	10.5	49.3	17.0	56.6	6.0	44.4

* Observed Mean Frequencies

** Transformed Mean Frequencies

Category:	Low Cognitive		High-Cognitive		Tool-Skill		Affective-Personal		Affective-Interactive	
	OMr	TMr	OMr	TMr	OMr	TMr	OMr	TMr	OMr	TMr
Teacher										
21	15.0	53.1	11.0	49.0	24.0	62.1	1.0	35.5	0.0	34.5
22	12.0	50.7	12.0	50.7	25.0	62.0	9.0	47.6	0.0	34.5
23	2.0	37.2	8.0	46.2	17.0	56.6	18.0	58.4	13.0	51.3
24	3.0	39.2	5.0	43.6	18.0	58.4	14.0	52.2	17.0	56.6
25	4.0	41.8	16.0	54.7	24.0	62.1	17.0	56.6	9.0	47.6
26	7.0	45.3	10.5	49.3	23.5	61.4	13.5	51.7	3.5	40.1
27	16.5	55.4	14.5	52.4	10.0	48.3	9.0	47.6	9.0	47.6
28	9.5	48.1	9.0	47.6	12.0	50.7	3.5	40.1	0.0	34.5
29	29.5	64.5	6.0	44.4	3.0	39.2	0.0	34.5	7.0	45.3
30	19.5	58.9	16.0	54.7	17.5	57.3	4.0	41.8	8.0	46.2
Means	15.14	51.41	14.67	53.4	15.88	56.71	9.75	47.61	7.68	44.83
Standard Deviations	12.22	10.28	12.06	8.06	10.15	11.35	6.31	7.7	7.69	8.46

Table 7 presents the Q-sort means and the transformed means from the observations for each teacher and for each category. Table 7 also presents the computed coefficient of correlation between the Q-sort means and the observation means by category for each teacher.

The correlation coefficients ranged from -.961 to .719. Of the total of thirty teachers, nineteen showed a positive relationship between their assignment of educational priorities

Table 7: Q-Sort Means and Transformed Observation Means Per Teacher, Per Category and Resultant Correlation Coefficients

Category:	Low-Cognitive		High-Cognitive		Tool-Skill		Affective-Personal		Affective-Interactive		Correlation Coefficients
	Q-SM*	TOM**	Q-SM	TOM	Q-SM	TOM	Q-SM	TOM	Q-SM	TOM	
Teacher											
1	4.40	53.4	6.40	41.8	3.85	100.0	6.30	48.3	4.05	50.7	- .632
2	3.60	37.2	5.30	43.8	4.55	56.6	6.80	60.2	4.75	49.3	.719
3	4.10	61.4	5.90	51.7	2.95	70.5	6.35	53.1	5.70	57.3	- .961*
4	4.25	54.7	5.30	59.7	4.45	43.6	6.35	52.2	4.65	66.2	.007
5	4.60	74.5	4.50	72.3	4.10	48.3	6.45	43.6	5.35	45.9	- .536
6	4.05	54.5	5.25	54.7	5.65	63.6	5.15	40.1	4.90	35.9	.208
7	3.35	60.5	4.70	58.4	4.45	55.4	6.35	49.3	6.15	42.5	- .683
8	4.05	45.9	5.70	45.9	5.00	60.8	4.90	40.1	5.35	34.5	- .141
9	3.85	44.4	5.70	53.4	4.45	58.4	5.90	49.3	5.10	41.8	.120
10	4.25	51.3	5.10	69.3	4.15	43.6	6.00	53.1	5.50	34.5	.042
11	3.40	42.5	4.15	50.0	6.45	49.9	5.95	54.7	5.05	39.2	.473
12	4.55	67.5	5.45	55.4	4.45	60.2	6.15	58.4	4.40	44.8	.068
13	3.05	51.3	5.05	54.7	4.95	68.4	5.75	45.3	6.20	59.4	.108
14	3.15	59.4	4.95	66.7	5.00	41.8	6.15	39.2	5.75	46.8	- .607
15	4.75	65.0	6.10	65.5	3.95	62.4	6.20	44.8	4.00	37.2	.119
16	3.75	63.2	4.65	49.3	4.20	50.7	5.90	35.0	6.50	34.5	- .958*
17	2.50	37.6	4.30	41.8	4.75	53.1	6.55	49.7	6.90	43.6	.527
18	4.05	42.5	6.40	57.3	4.45	46.8	6.00	54.7	4.10	56.6	.609

* Q-Sort Means

** Transformed Observation Means
$p = < .01$

Category:	Low-Cognitive		High-Cognitive		Tool-Skill		Affective-Personal		Affective-Interactive		Correlation Coefficients
	Q-SM	TOM	Q-SM	TOM	Q-SM	TOM	Q-SM	TOM	Q-SM	TOM	
Teacher											
19	3.70	46.8	5.45	64.0	5.35	5.89	5.05	34.5	5.45	41.8	.252
20	3.15	34.5	4.30	52.2	4.65	49.3	6.90	56.6	6.00	44.4	.689
21	4.15	53.1	6.25	49.7	3.80	62.1	6.95	35.5	3.85	34.5	- .398
22	4.30	50.7	5.70	50.7	3.60	62.8	6.15	47.6	5.25	34.5	- .584
23	4.05	37.2	4.15	46.2	4.85	56.6	5.70	58.4	6.25	51.3	.664
24	4.00	39.2	6.00	43.6	4.35	58.4	5.70	52.2	4.95	56.6	.005
25	3.05	41.8	5.65	54.7	4.85	62.1	6.15	56.6	5.30	47.6	.638
26	3.55	45.3	5.15	49.3	5.25	61.4	6.25	51.7	4.80	40.1	.442
27	4.45	55.4	5.90	52.4	4.35	48.3	5.55	47.6	5.75	47.6	- .044
28	4.00	48.1	5.50	47.6	5.80	56.7	5.35	40.1	4.35	34.5	.376
29	5.20	64.5	5.30	44.4	5.20	39.2	5.05	34.5	4.25	45.3	.092
30	3.60	58.9	4.75	54.7	5.70	57.3	5.30	41.8	5.65	46.2	- .521

* $p < .05$

and their practice of these priorities; eleven showed a negative relationship. None of the nineteen positive coefficients were found to be significantly different from zero. Overall, for all teachers and for all categories, a slightly negative correlation coefficient was found, - .150, between all the teachers' assigned priorities and practiced priorities. However, this also, was not found to be significantly different from zero. As a result, no evidence was found to support Hypothesis 3. This finding would seem to support Brown's study (1970) of teacher attitudes and their practice where he also found no relationship.

It would seem that these teachers, in general, believe that the category of affective-personal is the most important. However, they do not seem to translate this priority into their verbal classroom practice. When one examines teachers' overall ranking of the categories in the Q-sort the categories of affective-personal, (mean 5.98), high-cognitive, (mean 5.30), and affective-interactive, (mean 5.18) emerge as the top three categories. However, the overall means of observed behavior rank the categories of tool-skill, (mean 56.71), high-cognitive, (mean 53.4) and low-cognitive, (mean 51.41) as highest.

Although, in general, the teachers in this study seemed to practice those categories they assigned as being less important most often, this was not the case for all the teachers. Some teachers did tend to practice with greater frequency, those categories they assigned as most important.

Table 8 presents the five teachers that had the highest positive correlation coefficients, all greater than .60, and examines their two highest assigned and practiced categories.

Table 8: Teachers With The Highest Correlation Coefficients Between Assigned And Practiced

Teacher#*	Correlation Coefficient	Two Highest Assigned Categories With Means		Two Highest Practiced Categories With Means	
2	.719	Affective-Personal	6.80	Affective-Personal	60.2
		High-Cognitive	5.30	Tool-Skill	56.6
18	.609	High-Cognitive	6.40	High-Cognitive	57.3
		Affective-Personal	6.00	Affective-Interactive	56.6
20	.689	Affective-Personal	6.90	Affective-Personal	56.6
		Affective-Interactive	6.00	High-Cognitive	52.2
23	.664	Affective-Interactive	6.25	Affective-Personal	58.4
		Affective-Personal	5.70	Tool-Skill	56.6
25	.638	Affective-Personal	6.15	Tool-Skill	62.1
		High-Cognitive	5.65	Affective-Personal	56.6

*All five teachers had significant Q-sort results at $p < .01$.

Of these teachers who had the five highest coefficients of correlation, although none of them were found to be significant, all five selected the categories of affective-personal, affective-

interactive or high-cognitive as being the most important. Four of the five practiced the categories of affective-personal or high-cognitive most frequently. The fifth teacher, number 25, practiced affective-personal second most frequently, although affective-personal had been the highest choice in the Q-sort.

Table 9 presents the five teachers who had the highest negative correlation coefficients, all greater than minus .60 and examines their two highest assigned and practiced categories.

Table 9: Teachers With The Highest Negative Correlation Coefficients Between Assigned and Practiced

Teachers*	Correlation Coefficient	Two Highest Assigned Categories With Means		Two Highest Practiced Categories With Means	
1	-.632	High-Cognitive	6.40	Tool-Skill	100.0
		Affective-Personal	6.30	Low-Cognitive	53.4
3	-.961	Affective-Personal	6.35	Tool-Skill	70.5
		High-Cognitive	5.90	Low-Cognitive	61.4
7	-.883	Affective-Personal	6.35	Low-Cognitive	60.5
		Affective-Interactive	6.15	High-Cognitive	58.4
14	-.607	Affective-Personal	6.15	High-Cognitive	66.7
		Affective-Interactive	5.75	Low-Cognitive	59.4
16	-.958	Affective-Interactive	6.50	Low-Cognitive	63.2
		Affective-Personal	5.90	Tool-Skill	50.7

*All five teachers had significant Q-sort results at $p < .01$.

Of these teachers who had the five highest negative coefficients of correlation, all five selected the affective categories as one of their top two priorities, yet none of the five practiced these categories either most, or second most, frequently in the classroom.

Thus, it would seem that, although overall teachers did not practice those priorities of categories they assigned as being most important, a number of teachers tended to do so. What would seem to now be important to study is an articulation of those variables which can predict, with some consistency, which teachers practice those priorities they assign. Given, that this study demonstrated congruency between what classroom teachers and the literature deem as being the categories of greatest importance in education, the question of which variables predict classroom practice, in terms of these categories, seems paramount.

CONCLUSIONS

As a result of this study the following conclusions and implications may be offered:

The evidence found to support Hypothesis 1 adds validity to the theory of the utility of the five categories of educational objectives as measured by the Q-sort. This validity makes the instrument useful for several purposes.

School districts can determine the degree of agreement for priorities of categories among board members, administrators, students, community members and teachers. This information can be used to aid a district in collecting information to be used for instructional decisions.

Both the Q-sort and the observation instrument can be used by supervisors of both pre-service and in-service teachers where the desired categories of objectives would be used as criteria for successful teaching. Expectations of teacher performance could be clearly specified by the supervisor, based upon those objectives the teacher chose as being most important.

Teachers, once they chose those categories they feel are most important, can use this knowledge to select specific objectives that reflect their priorities of categories. Curricula can be found, or constructed, that lead to student practice of these behaviors. As a result teachers do not need to be passive as they currently seem to be regarding the choice of curricula for practice in their classroom. Once teachers are knowledgeable as to what their priorities of education are, they can voice these priorities and seek agreement with parents and students, in an effort to better articulate the objectives of instruction. This hopefully will lead to an upgrading in instruction.

The evidence found to support Hypothesis 2 suggests two conclusions. First, there is agreement between what the current literature and the elementary teachers in the field believe are the priorities of instruction. Second, this agreement among teachers transcends school district lines. No differences were found among the priorities of teachers in school districts varying in economic level. This finding seems to imply that teacher training, both pre-service and in-service, need not be concerned with the teaching environment so much as it need be concerned with how teachers can translate their common priorities in the affective and high-cognitive categories into specific learner behaviors that reflect the objectives in these categories.

The lack of support found for Hypothesis 3 suggests that these categories are not what teachers in the main are practicing. One possible strategy toward finding specific intervention techniques to narrow the gap between preferred and practiced objectives is to investigate the characteristics of those teachers who tended to practice in greater frequency those categories they chose as most important. Such investigation may bring to light possible specific experiences that may have led to this. The findings may, in turn, be worked into new and better teacher training programs.

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